







March 2024 Board Meeting

Schedule	Wednesday, March 13, 2024 10:15 AM — 11:15 AM CDT
Venue	Maxine A. Smith University Center - Bluff Room (304)
Organizer	Colton Cockrum

Agenda

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1. Call to Order and Opening Remarks

Presented by Cato Johnson

2. Roll Call and Declaration of Quorum

Presented by Colton Cockrum

3. Approval of Full Board Meeting Minutes from December 12, 2023

For Approval

Presented by Cato Johnson

**The University of Memphis
Board of Trustees
Full Board Minutes
December 12, 2023**

Agenda Item 1: Call to Order and Opening Remarks

Chairman Edwards calls the meeting to order. Chairman Edwards remarked about the loss of Dr. Dick Irwin and asked to keep the Irwin family in thoughts and prayers. Also, Chairman Edwards shared the successes of some of the athletic programs. The chairman also reiterated the importance of the strategic plan and the importance of safety and security.

Agenda Item 2: Roll Call and Declaration of Quorum/Meeting of Necessity

Chairman Edwards recognized Board Secretary, Melanie Murry to call the roll.

Secretary Murry called the roll. The following trustees were in attendance:

Trustee Roberts
Trustee Johnson
Trustee McKinney
Trustee North
Chairman Edwards
Trustee Marchetta
Trustee Carter
Trustee Springfield

Secretary Murry announced the presence of a quorum.

Agenda Item 3: Approval of September 6, 2023, Meeting Minutes

Chairman Edwards called for a motion to approve the meeting minutes for the September 6th, 2023, meeting. The motion was made by Trustee Johnson and properly seconded. A voice vote was taken, and the motion was unanimously approved.

Agenda Item 4: President's Update

President Hardgrave reminded the Board about the upcoming graduation on Sunday. President Hardgrave mentioned that Mr. Zimmerman, the founder of Service Merchandise, would be the commencement speaker at the upcoming commencement ceremony. In addition to being the commencement speaker, Mr. Zimmerman will also receive an honorary degree from the university.

President Hardgrave mentioned that 1131 undergraduate and 628 graduate students will graduate on Sunday.

President Hardgrave mentioned several key hires that the University has made. President Hardgrave stated that the search for the Executive Vice President and COO/CFO had concluded and Rene Bustamante was the finalist who was being offered the position. The President stated board bylaws requires the Board of Trustees to approve Rene Bustamante to be appointed in this position.

A motion was made by Trustee Carter to approve the appointment of Rene Bustamante as Executive Vice President and COO/CFO and was properly seconded. A voice vote was taken, and the motion was approved.

President Hardgrave recognized Greg DuBois for his service as interim chief financial officer.

Agenda Item 5: Presentation of BRAIN Center

Chairman Edwards recognized Dr. Eraina Schauss, Director of the Brain Center at the University of Memphis. Dr. Schauss presented on the BRAIN Center.

After the presentation, Trustee North thanked Dr. Schauss for her work and research.

Agenda Item 6: Reports and Recommendations of the Academic, Research and Student Success Committee

Chairman Edwards recognized Trustee Marchetta to give a report of the Academic, Research and Student Success Committee. Trustee Marchetta explained that the committee voted on and approved tenure upon appointment for two professors.

Trustee Marchetta moved forward the recommendation of the committee and asked the Board to move to approve both Dr. Kavouras and Dr. Levin for tenure upon appointment. Trustee Marchetta made the motion, and it was properly seconded. A voice vote was taken and unanimously approved.

Trustee Marchetta wanted shared the news provided by Provost Russomanno on the appointment of Jasbir Dhaliwal to the position of distinguished university professor.

Agenda Item 7: Reports and Recommendations of the Governance and Finance Committee

Chairman Edwards mentioned that several issues were addressed in this committee. Chairman Edwards mentioned the update that was provided by the athletic director on the progress on the stadium.

Chairman Edwards mentioned the revised budget for the upcoming years. In that budget there were two requests, \$2 million that would go to the BRAIN Center and a \$65 million request for capital maintenance. The committee also discussed some revisions and adjustments on student housing costs. Chairman Edwards stated that student housing costs are affordable

compared to other universities. Chairman Edwards stated the importance of safety and security and the institution will need to do things to enhance that.

Chairman Edwards recapped the legislative priorities that were provided by President Hardgrave for this past year and upcoming year.

Chairman Edwards entertained a motion for the revised FY2024 budget. The motion was made by Trustee North and properly seconded. A voice vote was taken, and the motion passed unanimously.

Chairman Edwards requested a motion to approve a 3.5% housing fee increase for the next four years. The motion was so moved by Trustee Johnson and properly seconded. A voice vote was taken and the motion passed unanimously.

Agenda Item 8: Reports and Recommendations of the Audit Committee

Chairman Edwards recognizes Trustee Roberts. Trustee Roberts explained that her committee received a presentation from chief audit executive, Vicki Deaton, who gave a report that provided information on the summary of audit reports issued, summary of internal investigations, external audit reports for the University of Memphis Foundation financial statements and the University of Memphis Research Foundation financial statements, and an annual review of the audit committee charter.

Trustee Roberts stated that the committee received a report from Karen Bell, interim Chief Information Officer that covered the Information Security Program Update.

Trustee Roberts reported that Greg DuBois, Interim Chief Financial Officer, and Mark Heath, Executive Director for Business Continuity and Risk Management gave a presentation on risk assessment. None of the items required approval from the board and were for information purposes only.

Agenda Item 9: New Business

Chairman Edwards explained that there were several issues that needed to be addressed in new business. Chairman Edwards explained that there was a proposal at the September BOT meeting that was tabled to the December meeting to modify the existing committee structure and to add several new committees. He explained finance and audit would be a committee together and governance would be a separate committee. Chairman Edwards detailed that the Board would need to vote on changing the committee structure and change the board bylaws. He then opened the floor up for discussion on the new Board structure.

Secretary Murry mentioned that the amendment to the Board bylaws requires a super majority and asked Chairman Edwards that he may want to pull the Board bylaws out for a separate

vote. Chairman Edwards stated that indeed they would need to talk about the committees first then go back to the bylaws.

Trustee North stated that a review of the bylaws is a good thing to do, and it helps align committee structure with the strategic plan and he supported those changes.

Chairman Edwards stated that when the Board was created the committees weren't intended to be static and he stated that he supported the changes that were being talked about. He mentioned that the new committee structure better positions the university.

Chairman Edwards recognized Trustee Marchetta. Trustee Marchetta mentioned that he supports the bylaws and he supports the reorganization of the committees. He does have some concerns about the committee charters but because he is new to the board and still navigating the processes for making amendments, he said he won't vote for the charters as a slate. He plans to make amendments to the charters at a later Board meeting.

Chairman Edwards made a motion to approve the charters for the committees and approve the committee structure. Trustee McKinney seconded the motion. A roll call vote was taken and the motion carried.

Chairman Edwards requested a motion be made to approve the bylaws. Trustee Roberts made a motion to approve the changes to the Board bylaws as presented in the materials that the Board received. A second was provided by Trustee Johnson. A roll call vote was taken and the motion carried.

Trustee North made a motion that the Board moves to approve the revised board committees policy as contained in the meeting materials. A second was made by Trustee Johnson. A voice vote was taken and the motion carried.

In the last item for approval before the Board, Chairman Edwards explained that this meeting was the last meeting for the current Board secretary, Melanie Murry. He mentioned that Melanie has been with the Board since the beginning. He thanked Melanie for her service.

Trustee North then stated that being a Board Chair is very complex and that Melanie was always a great help to him.

Chairman Edwards mentioned that the successor for Melanie Murry would be Dr. Colton Cockrum, upon approval of the Board. Chairman Edwards asked for a motion to appoint Dr. Cockrum as secretary of the Board. The motion was made by Trustee Roberts and properly seconded. A voice vote was taken and the motion passed.

Agenda Item 10: Additional Business

Chairman Edwards explained that last March (2023) he agreed to stay on as Board Chair an additional year. He stated that now would be a good time to step away from the Board and he requested that the Board choose a new chair. Chairman Edwards asked the Board to consider Trustee Johnson to fulfill the last year of his Board Chair tenure.

Trustee North provided comments that lauded the efforts of Chairman Edwards and thanked him for his service. He also stated that this was a great time to ask Trustee Johnson to serve as chair of the Board. Trustee North then went on to provide a brief bio of Trustee Johnson's accomplishments and that he supported the nomination of Trustee Johnson as the next chair.

Trustee North made the motion that the Board appoints Trustee Cato Johnson to the role of Chair and that he serves as the third person on the Executive Committee until such time. A motion was made by Trustee Roberts and properly seconded. A voice vote was taken and the motion passed.

Trustee Johnson made closing remarks about the importance of the institution and his pride in being a graduate of the institution and a member of the Board. He stated that he would do his best to do his job well. He thanked the committee and audience and asked for support.

Agenda Item 11: Adjournment

Chairman Edwards adjourned the meeting.

4. Request to Address the Board

5. President's Update

Presentation

Presented by Bill Hardgrave

6. Cavitation Erosion: Model to Full Scale Presentation

Presented by Daniel Foti

Cavitation Erosion: Model to Full Scale

Daniel Foti
Assistant Professor, Department of Mechanical
Engineering

March 13, 2024



MARCH 2024 MEETING

Cavitation Erosion Prevention

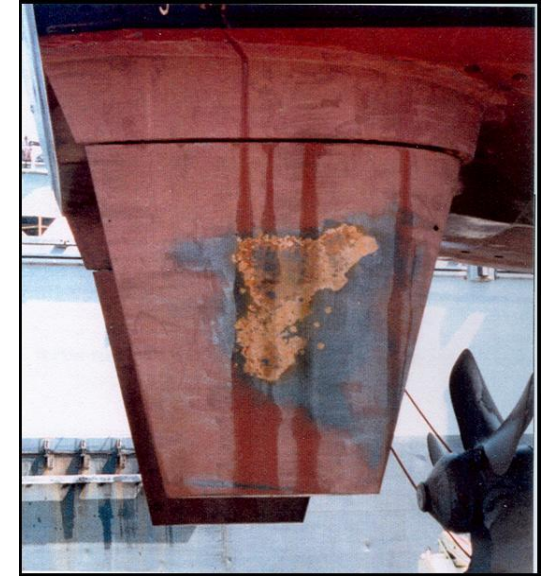
What is cavitation erosion?

- Cavitation is when liquid water changes to water vapor due to low pressure
- Propellers and rudders produce low pressures to generate thrust
- When cavitation bubbles collapse, strong pressure waves are created
- Impact on a surface is strong enough to remove metal

Erosion damages Naval assets and requires expensive analysis

Designs to avoid erosion affect performance

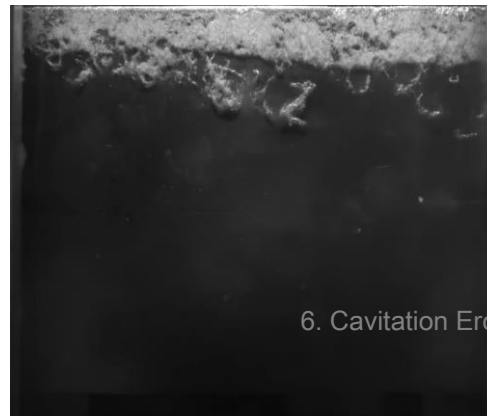
We are limited in our understanding, especially at full scales



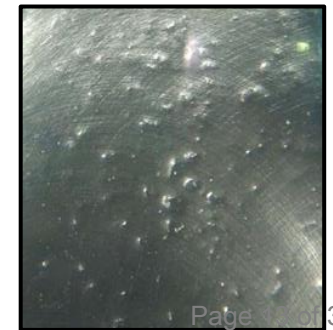
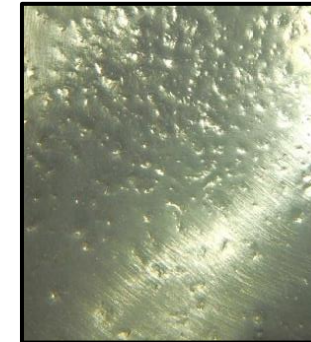
Cavitation Erosion on US Destroyer
(Shen, et al. J. Ship Research, 1997)



March 2024 Board Meeting



6. Cavitation Erosion: Model to Full Scale

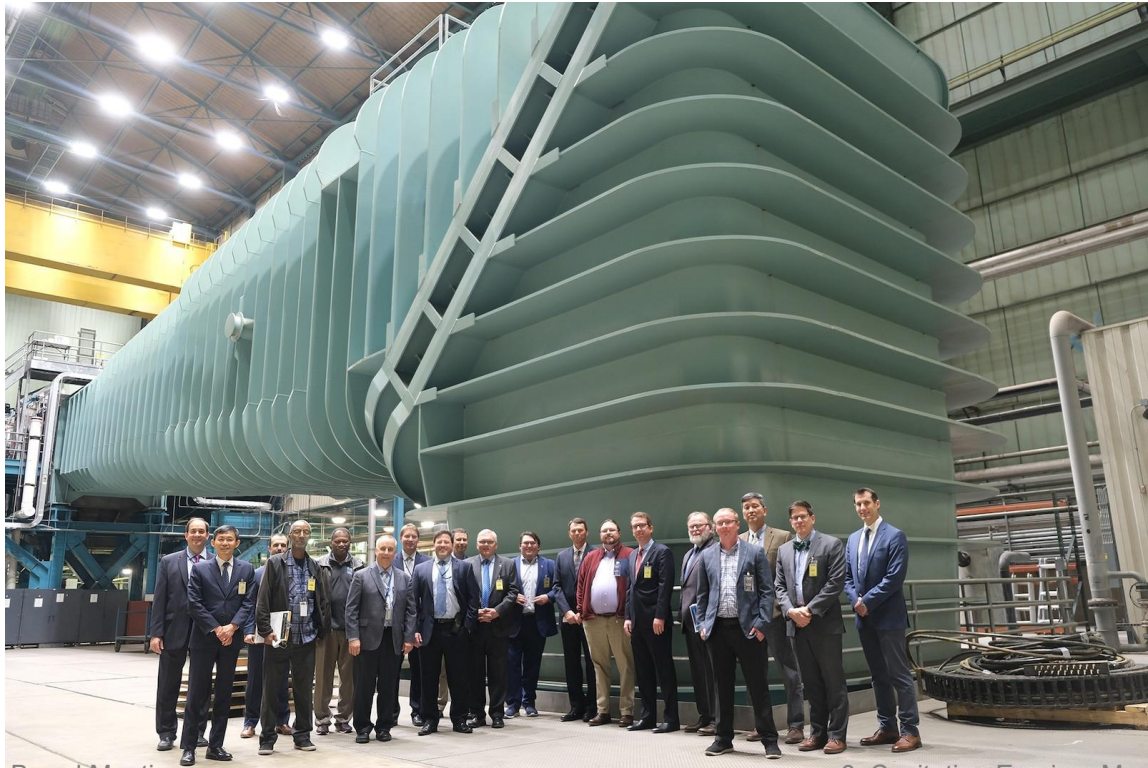


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Propellers on ships return from sea with pits

Large Cavitation Channel (LCC)

- Located in Memphis, TN on President's Island
- One of the largest cavitation channels in the world (Approximately 100 sq ft cross section)



Hydrofoil in Test section

Collaboration with NSWC Carderock

- Naval Surface Warfare Center Carderock Division
 - One of nine naval warfare centers
 - Cradle-to-grave support surface and undersea platforms
 - Research and development, testing and evaluation, support of fleet
 - LCC is part of the Memphis Detachment



National Defense Authorization Act (NDAA)

With the Division of Research and Innovation and Office of Government Relations and Policy, we proposed this project to our congressional delegation

FY 23

		APPLIED RESEARCH		
004	0602114N	POWER PROJECTION APPLIED RESEARCH	22,953	22,953
005	0602123N	FORCE PROTECTION APPLIED RESEARCH	133,426	192,926
		Cavitation erosion prevention		[5,000]
		CPF—Resilient Autonomous Systems Research and Workforce Diversity.		[4,000]

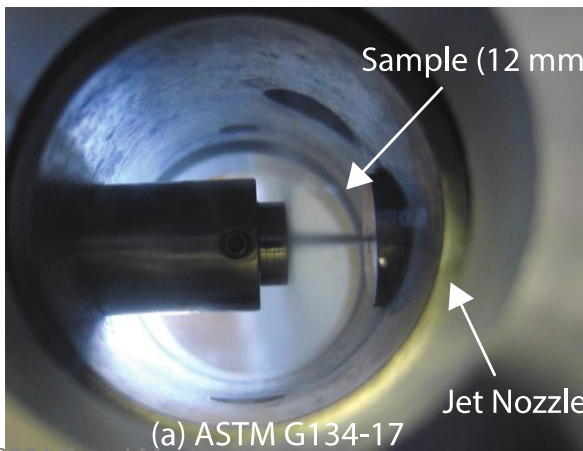
FY 24

		APPLIED RESEARCH		
003	0602114N	POWER PROJECTION APPLIED RESEARCH	23,982	23,982
004	0602123N	FORCE PROTECTION APPLIED RESEARCH	142,148	144,648
		Cavitation erosion research		[2,500]
005	0602131M	MARINE CORPS LANDING FORCE TECH-NOLOGY.	59,208	68,708

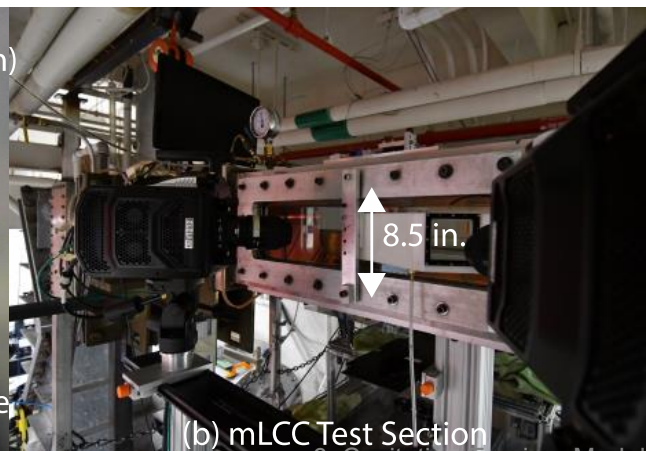
Project Objectives

Uncertainty in scaling laws and model-scale measurements

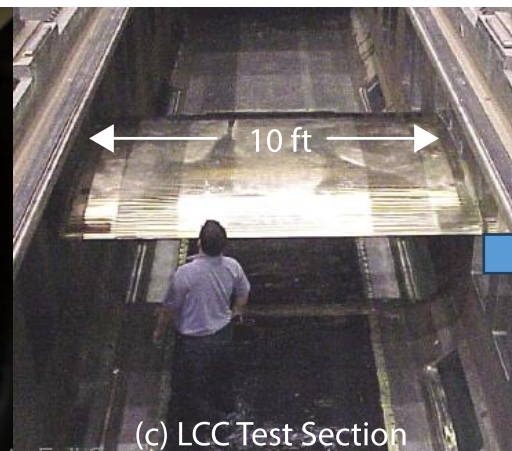
1. Conduct experimental/computational cavitation erosion studies from the *model to the full scale*
2. Develop simulation tools to capture cavitation regimes
3. Develop scaling relations based on materials and flow



Cavitating Jet: 1 cm² Scale



mLCC: 100 cm² scale



LCC: 1 m² scale



LCC Facility

Research Participants at UMemphis

Mechanical Engineering Faculty:

- **Dr. Daniel Foti** – Lead PI, Computational Fluid Dynamics
- **Dr. Amir Hadadzadeh**, Material Characterization
- **Dr. Yuan Gao**, Microfluidics



Post-doctoral Associates:

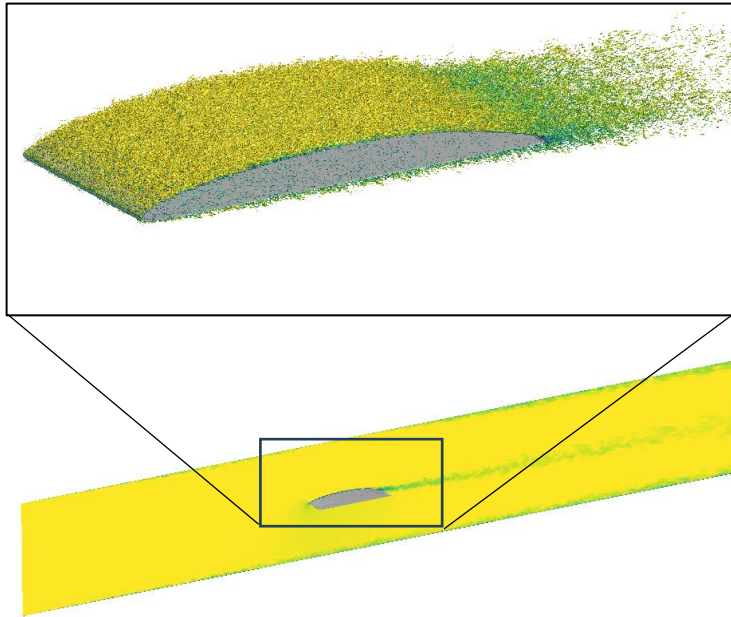
- **Dr. Reza Nouri**, Computational Fluid Dynamics
- **Dr. Tahmina Keya**, Materials Characterization

Graduate Students:

- **Sophie Wood**, Computational Fluid Dynamics
- **Renjie Ning**, Microfluidics

Ongoing Cavitation Research at Memphis

Computational Fluid Dynamics



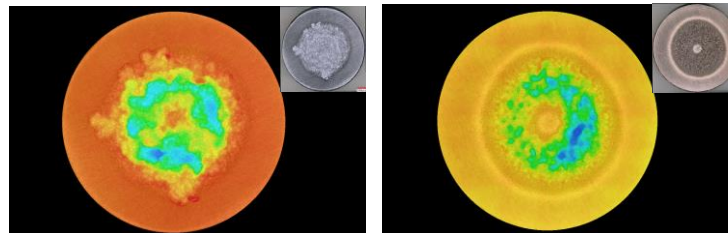
Simulations of LCC with hydrofoil

Aid in LCC experiment design
Predict pressure impacts

Material Characterization



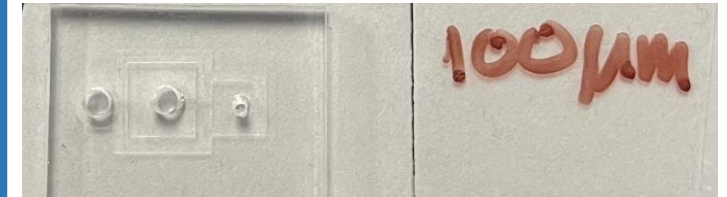
Microstructure of materials



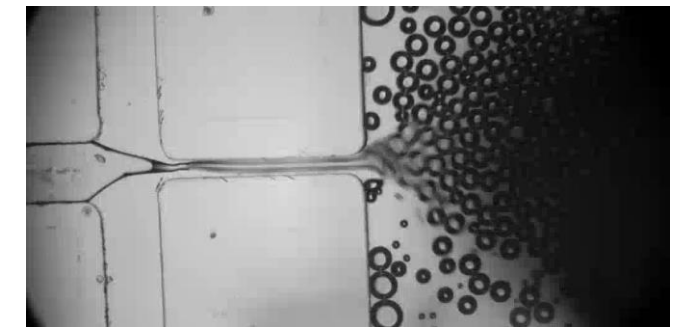
Surface Analysis after experiment

Characterize material behavior at
all scales before/after testing

Cavitation Bubble Generation



Fabricated bubble generation device



Create microbubbles to control
cavitation formation

Sponsorship and Collaborations

SPONSOR

US Office of Naval Research (ONR)

- Dr. Yin-Lu (Julie) Young, Program Officer
 - Advanced Naval Platforms
 - Propulsor Hydrodynamics, Hydroacoustics and Structural Dynamics



COLLABORATORS

NSWC Carderock

- Dr. Thad Michael
- Dr. Jin-Keun Choi
- Dr. Joel Hartenberger



University of Michigan

- Professor Stephen Ceccio - Experiment at mini-LCC
- Professor Krishnan Mahesh - Computational fluid dynamics



Cavitation Erosion Prevention Workshop

- Cavitation erosion prevention materials and coatings workshop
- Hosted by University of Memphis, Summer 2024
- Inviting experts from academia, government, and industry
 - Including ONR, NSWC, NRL,
- Demonstration of LCC cavitation erosion experiments



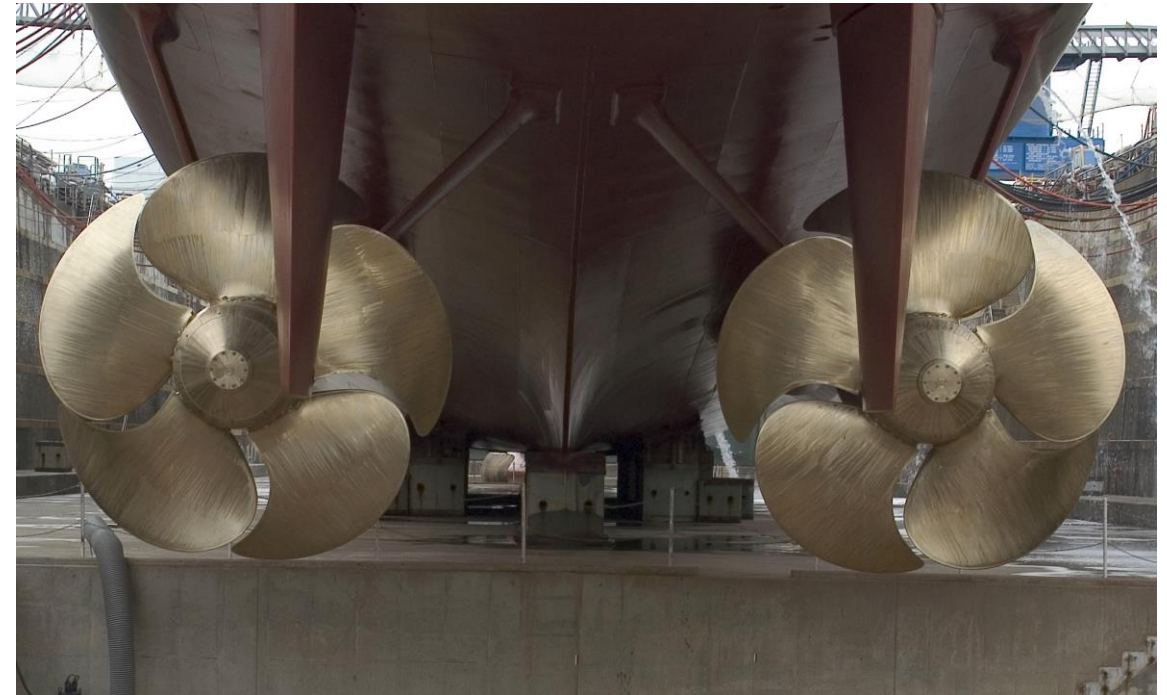
Outcomes and Applications

Make more accurate predictions of cavitation erosion from model test data

- Avoid or anticipate maintenance problems

Reduce design margins required to avoid cavitation erosion

- More efficient
- Lighter weight
- Less expensive

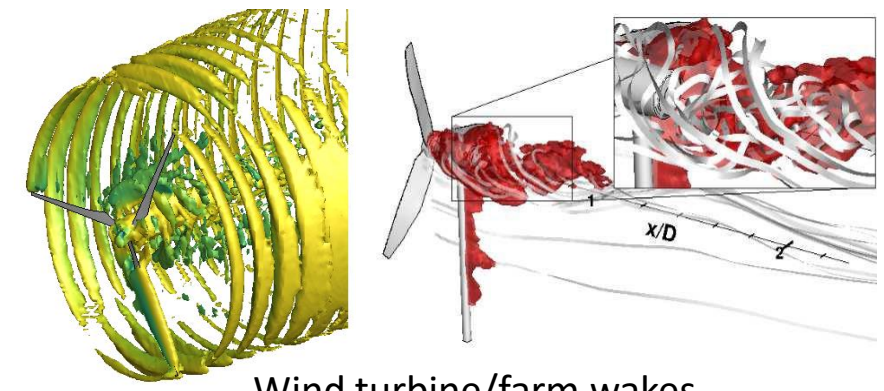


Arleigh Burke Class DDG 54 (US Navy)

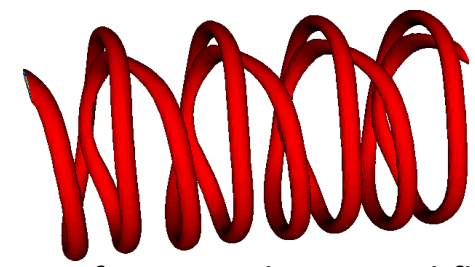
Related Research in Fluid Dynamics + Computational Science

Coherent Structures in Turbulent Flows: Simulation, Analysis, and Modeling

Research Sponsors



Wind turbine/farm wakes



Rotorcraft vortex-dominated flows



National
Science
Foundation



U.S. DEPARTMENT OF
ENERGY

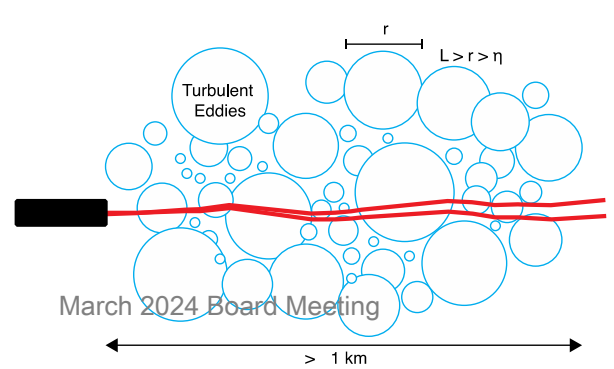
Office of Science



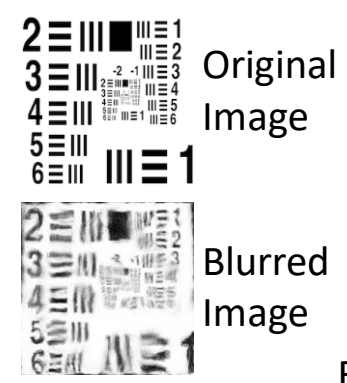
Sandia
National
Laboratories



TDOT
Department of
Transportation

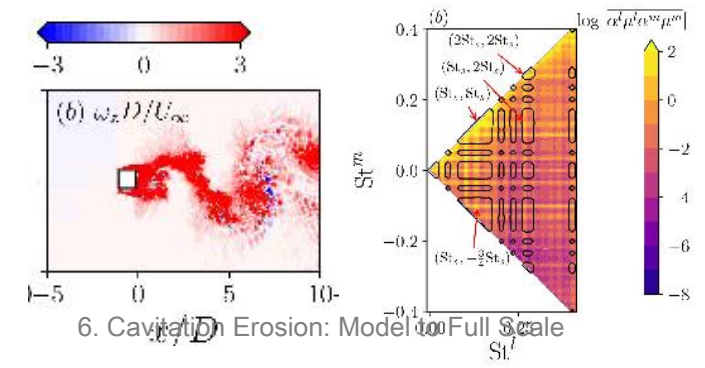


Optical Turbulence Modeling



Original
Image

Blurred
Image



6. Cavitation Erosion: Model to Full Scale

Fundamental Behaviors of Turbulence

7. Reports and Recommendations from Academic and Student Affairs Committee

Presentation

Presented by Jeffrey Marchetta

The University of Memphis Board of Trustees

Recommendation for Approval

Date: March 13, 2024

Committee: Academic and Student Affairs Committee

Presentation: Institutional Mission Profile (approval)

Presented by: Dr. David Russomanno, Executive Vice President for Academic Affairs and Provost

Background:

Tennessee state law requires the Board of Trustees to approve and submit an annual institutional mission profile to THEC that contains the following information:

- Characterize distinctiveness in degree offerings by level, focus, and student characteristics, including, but not limited to, nontraditional students and part-time students; and
- Address institutional accountability for the quality of instruction, student learning, and, when applicable, research and public service to benefit Tennessee citizens.

Committee Recommendation:

The Academic, Research and Student Success Committee recommends approval of the Institutional Mission statement.

University of Memphis Institutional Mission Profile

The University of Memphis (UofM) is a comprehensive, internationally recognized, urban public research university preparing students for success in a diverse, innovative and global environment. Student success, service, innovation, knowledge discovery and dissemination, commitment to an inclusive academy, collaboration and accountability are core values at the University of Memphis.

The University is classified as “Carnegie R1” or "Doctoral: Very High Research Activity and Community Engaged" per the Carnegie Classification of Institutions of Higher Learning. With a focus on research and service benefitting communities locally and across the globe, we are home to nationally designated centers of excellence in cybersecurity research and education, transportation workforce development, mobile health data and five Tennessee centers of research excellence.

The UofM is dedicated to providing the highest quality of education to a diverse student body that includes members who are of all ages, racial and ethnic heritages, and economic backgrounds (including a significant proportion of students who are Pell Grant eligible), as well as veterans and first-generation college students. Academic degree programs at the undergraduate, masters, doctoral and professional levels, as well as certificate programs are offered on the Central and Park Avenue campuses in Memphis, the Lambuth campus in Jackson and through UofM Global. The UofM awards approximately 4,700 degrees and certificates annually. Talented and innovative faculty have developed both undergraduate and graduate programs that are ranked in the top 25 nationally. Our metropolitan setting has enabled us to build a nationally recognized internship program that facilitates the placement of undergraduate and graduate students throughout the community in nonprofit and for-profit organizations that specialize in healthcare, government, transportation and logistics, music and entertainment, medical devices, banking and the arts.

8. Reports and Recommendations from Advancement Committee

Presentation

Presented by Robert Carter

9. Reports and Recommendations from Finance and Audit Committee

Presentation

Presented by David McKinney

The University of Memphis Board of Trustees

For Approval

Presentation of Capital Budget Request for FY 25 / 26

Date: March 13, 2024

Committee: Finance and Audit

Presentation: Capital Budget Request for FY 25 / 26

Presented by: Rene Bustamante / Tony Poteet

Background:

Per Tennessee Higher Education Commission (THEC) Policy F4.0 Capital Projects: As the coordinating body for higher education in Tennessee, THEC engages with institutions and governing boards on capital investment through its role to develop and approve recommendations for capital outlay and maintenance funding. THEC identifies capital investment needs and determines priorities for those investments for consideration by the Governor and the General Assembly as part of the annual appropriations act. Categories of projects submitted to THEC in the annual Capital Budget Request are as follows:

Capital Outlay: In accordance with funding request guidelines annually disseminated by THEC staff, the Commission receives a prioritized list of capital outlay projects from each governing board for evaluation and scoring into a single prioritized list for the state. These projects either provide new space or major renovations (or a combination of both), and respond to: state goals for education, strategic plans, space guidelines, facility assessments, program plans, business plans, and/or external funding and the campus master plan. One project is requested from each LGI for 24 /25 along with a five-year plan for future projects. Match funding in the amount of 17% for new construction (of which 50% must be gift funds) or 6% for major renovations is required from the campus for each project.

Capital Maintenance: THEC requests a prioritized list of capital maintenance projects from each governing board. THEC staff makes project recommendations to the Commission's Board in accordance with a capital maintenance formula. The formula may include, but not be limited to, the age, gross Education & General (E&G) square footage, usage, and conditions of institutions facilities. Individual projects should reduce deferred maintenance and protect the assets of the state. Based upon the current THEC funding formula, U of M will receive 11.7% of the total statewide higher education maintenance funding as approved by the governor and legislature.

Disclosed Projects: A project must be disclosed to the legislature if it is an improvement over \$ 100,000 or a maintenance project over \$ 1,000,000. Bonded projects, new construction, and major projects over \$ 10 million should be disclosed as part of the annual capital budget submittal. Projects will be itemized as part of the annual state budget approved by the Legislature. Projects disclosed in the annual capital budget process may be brought to the SBC in July of 2025.

Committee Recommendation: Motion to approve the Capital Budget Request for Fiscal Year 2024 / 25 as detailed in the meeting materials.

The University of Memphis Board of Trustees

Recommendation

For Approval

Date: March 13, 2024

Committee: Finance and Audit

Presentation: University of Memphis Real Estate Foundation

Presented by: Greg DuBois

Background:

Purpose: The purposes for which the Foundation is organized are solely and exclusively for charitable, scientific, literary and educational purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code of 1986. The powers include those granted in T.C.A. §§ 48-53-102 and 103 plus the following key purposes and powers:

- (a) To promote and support literary, scientific, educational, research, charitable and developmental purposes and objects of all colleges and departments within the University of Memphis.
- (b) To pursue alternative financing and funding to support institutional operating needs and capital investments and projects of the Foundation or the University.
- (c) To purchase, hold, manage, and operate, for the benefit of the University, auxiliary services that are incidental to the University's mission and student welfare. Such services may include, but are not limited to, student and University housing, commercial real estate, and other services as may be deemed in the future to be services for the benefit of the University.
- (d) To purchase, own, hold, manage, use, rent, lease, sell, mortgage, pledge, or otherwise acquire and dispose of property, including equities, trusts, real estate, and personal property.
- (e) To loan and borrow monies and to pledge assets as security for such loans.

Motion:

Motion to authorize the creation of the University of Memphis Real Estate Foundation. This entity will be governed by a Board of Directors comprised of community members and senior administration of the University of Memphis.

10. Additional Business

Presented by Cato Johnson

11. Adjournment

Presented by Cato Johnson